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Zheng

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(54) **LATCHING STRUCTURE OF TONNEAU COVER**

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B60J 7/16 (2006.01)
B60J 7/19 (2006.01)

(52) **U.S. Cl.**
CPC ***B60J 7/141*** (2013.01); ***B60J 7/1607*** (2013.01); ***B60J 7/198*** (2013.01)

(58) **Field of Classification Search**
CPC B60J 7/068; B60J 7/085; B60J 7/10; B60J 7/102; B60J 7/12; B60J 7/141; B60J 7/1607
USPC 296/98, 100.01, 100.11, 100.15
See application file for complete search history.

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(57) **ABSTRACT**

A truck cover system includes a rail coupled to a wall of the truck, wherein the rail comprises a channel on a top portion of the rail and a latching slot at a side of the rail, wherein the channel extends along a longitudinal direction of the rail and is configured to couple to a cover, and the latching slot extends along the longitudinal direction of the rail; a latching insert inserted in the latching slot, wherein the latching insert comprises a first through hole and a positioning hole; a latching positioner fastened to the latching insert, wherein the latching positioner comprises a second through hole aligned with the first through hole and a positioning pin aligned with the positioning hole; a latching housing releasably latched to the latching positioner.

20 Claims, 6 Drawing Sheets

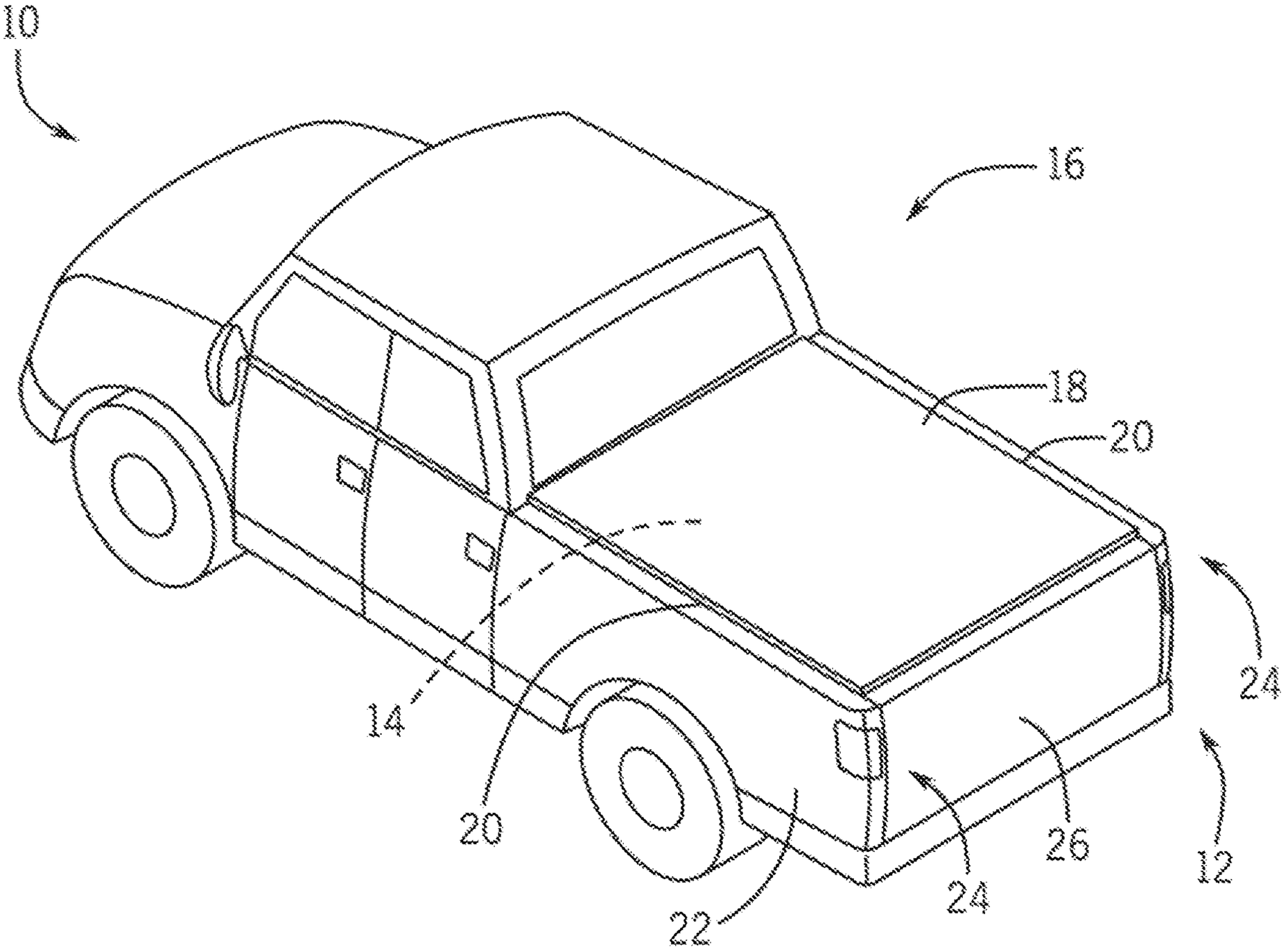


FIG. 1

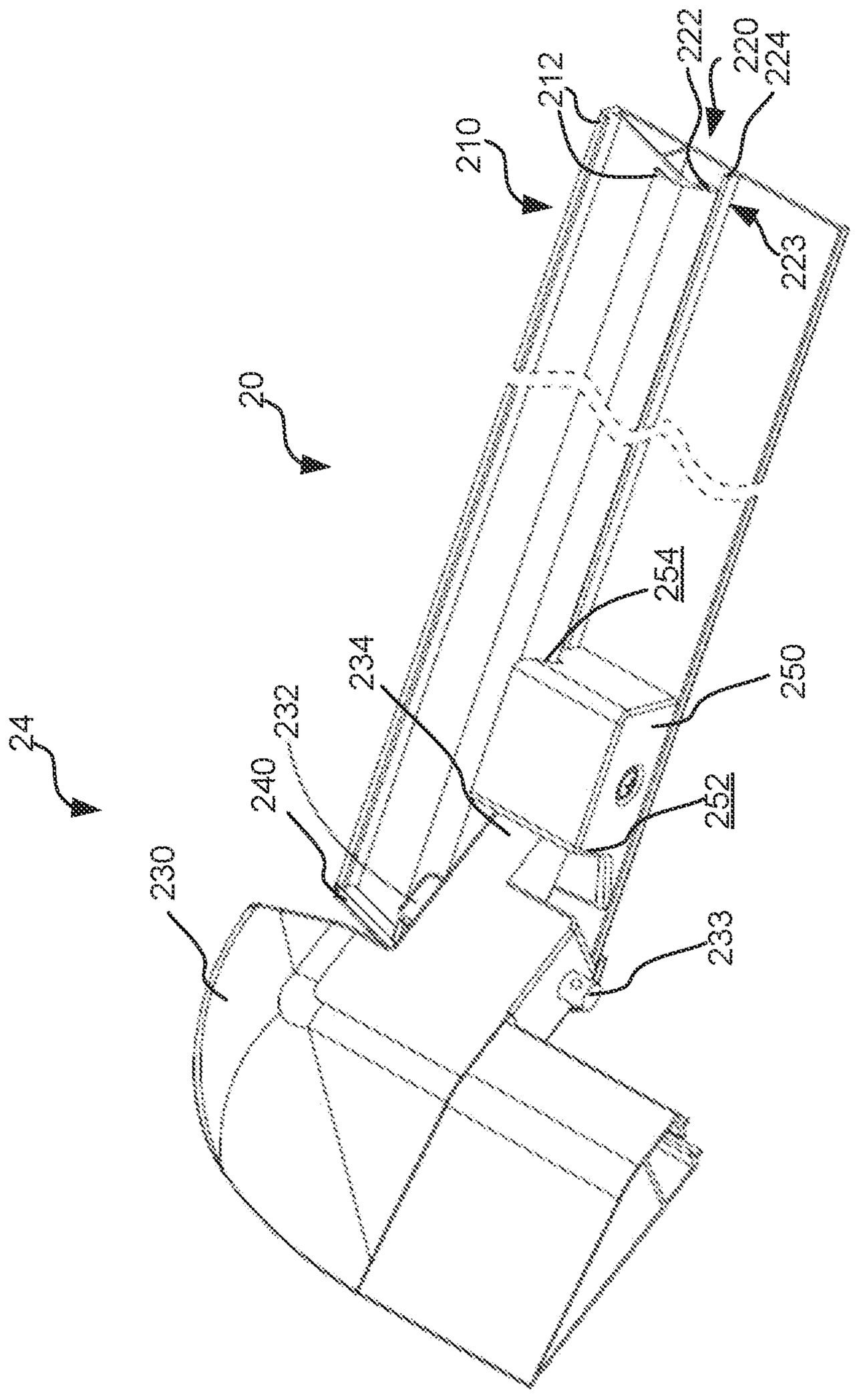
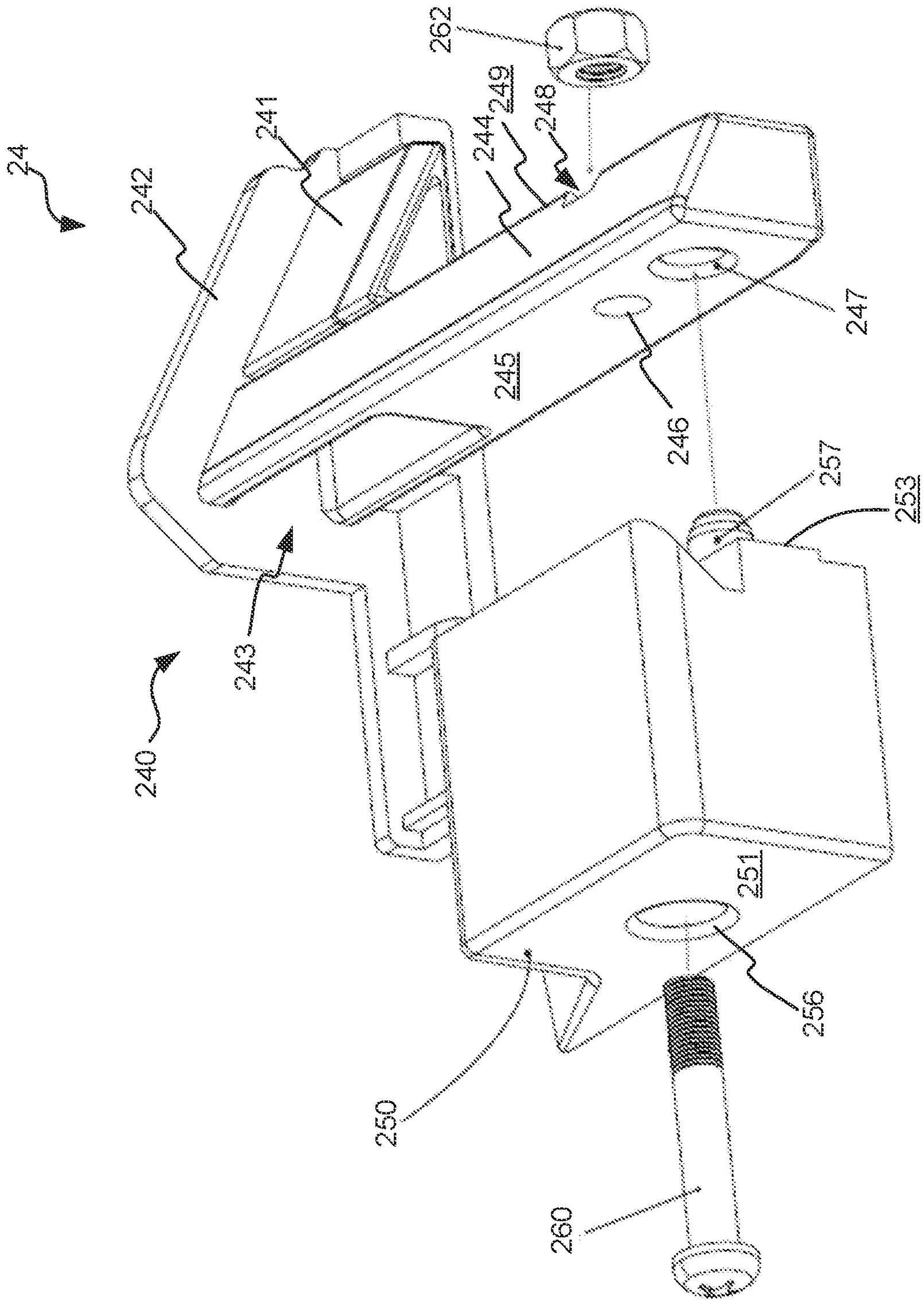


FIG. 2


24
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249
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262
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257
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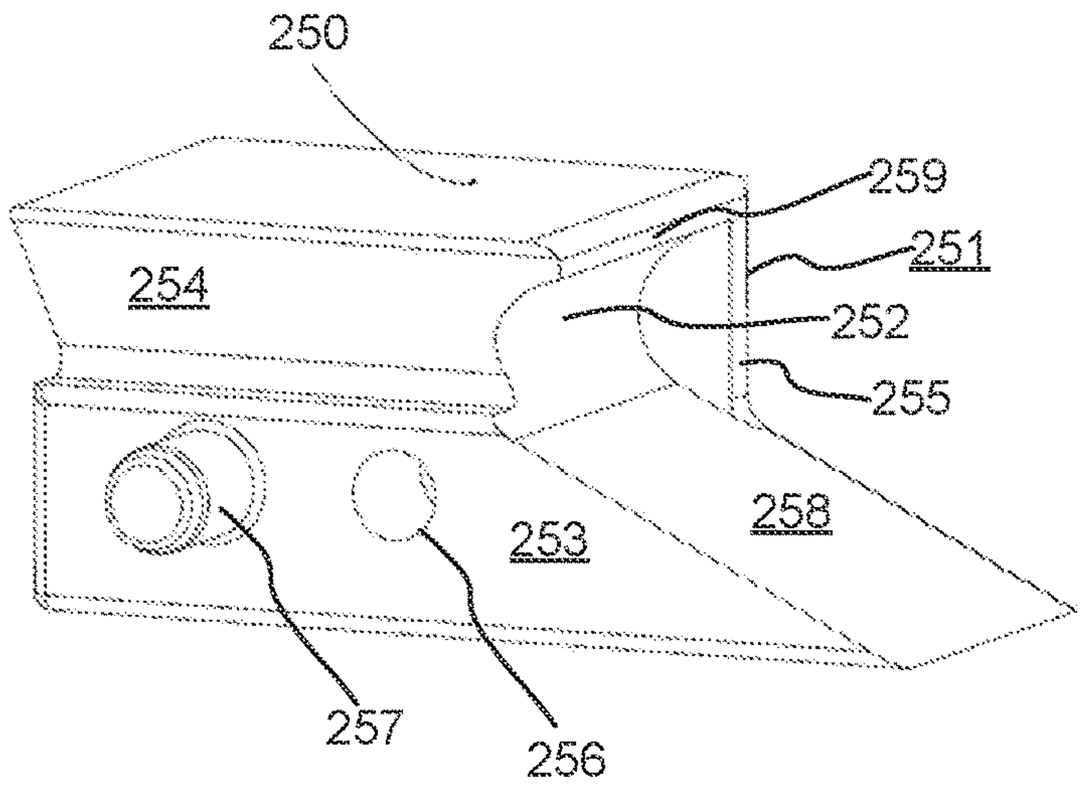
260

FIG. 3


250
259
251
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252
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257
256

FIG. 4

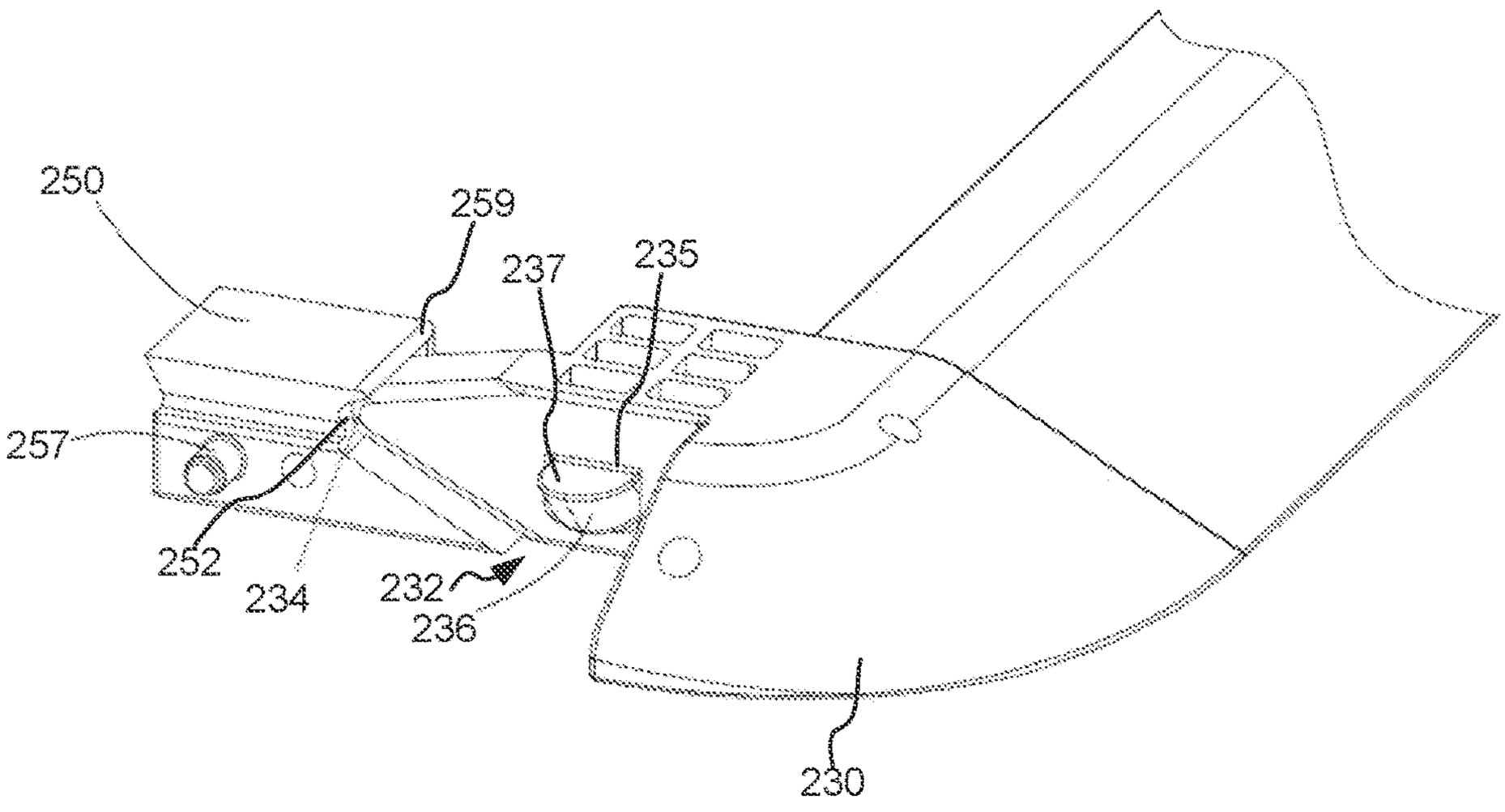
250
259
237
235
257
252
234
232
236
230

FIG. 5

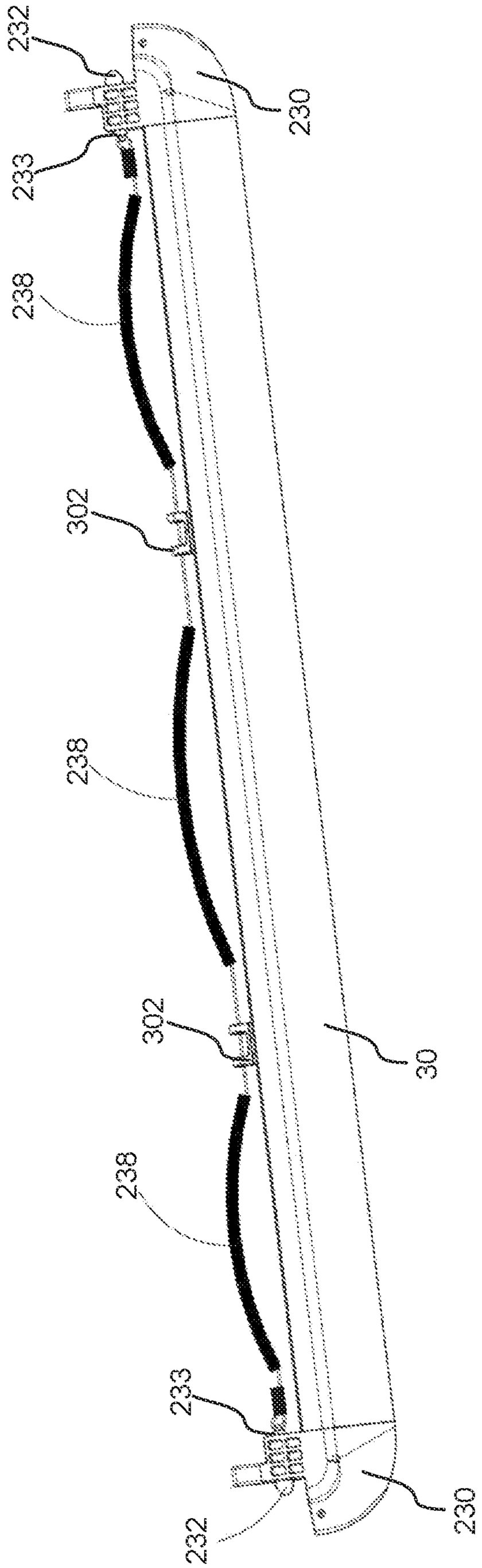

FIG. 6

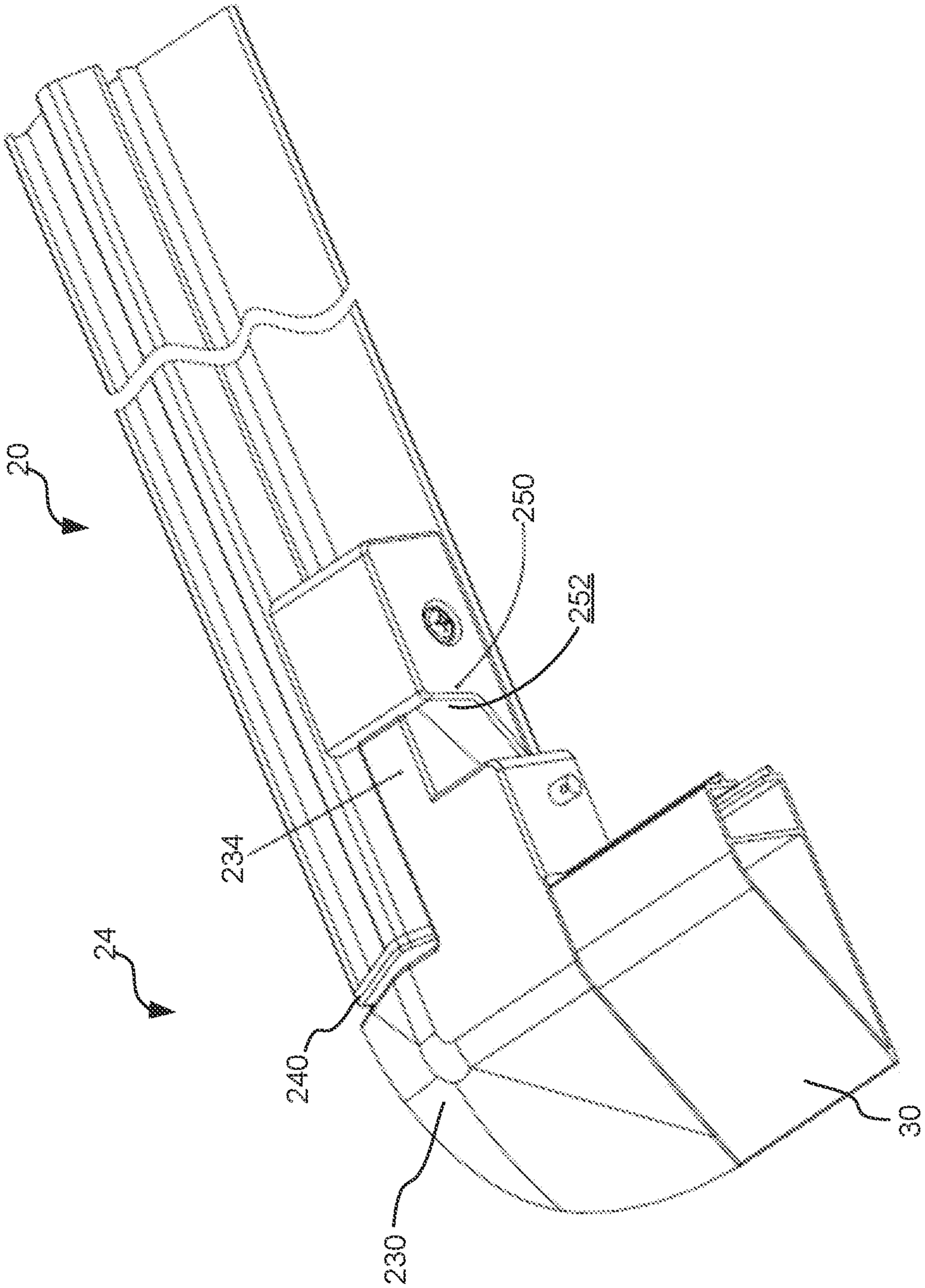

FIG. 7

LATCHING STRUCTURE OF TONNEAU COVER

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the priority to and benefits of Chinese Patent Application No. 202021773296.8, filed on Aug. 21, 2020, entitled with "Framework for Tonneau Cover," and Chinese Patent Application No. 202010849997.3, filed on Aug. 21, 2020, entitled with "Framework for Tonneau Cover," which are incorporated herein by reference in their entireties for all purposes.

BACKGROUND OF THE INVENTION

Truck cover system are often used to protect cargo beds of pickup trucks. Cover systems often cover all or a portion of the cargo bed such that any items stored and/or hauled in the cargo bed are protected from outside elements, as well as theft. Many conventional cover systems are releasably latched at the tailgate to a side rail of the truck to keep the cover in a tensioned configuration. To facilitate access to the cargo bed, the latching structure of the cover system may be easily released. Conventional cover systembi involves many inadequacies. Improved cover systems are desired.

BRIEF SUMMARY OF THE INVENTION

A truck cover system is proposed according to some embodiments of the present invention. The truck cover system includes: a rail coupled to a wall of the truck, wherein the rail includes a channel on a top portion of the rail and a latching slot at a side of the rail, wherein the channel extends along a longitudinal direction of the rail and is configured to couple to a cover, and the latching slot extends along the longitudinal direction of the rail. The truck cover system further includes a latching insert inserted in the latching slot, wherein the latching insert includes a first through hole and a positioning hole. The truck cover system includes a latching positioner fastened to the latching insert, wherein the latching positioner includes a second through hole aligned with the first through hole and a positioning pin aligned with the positioning hole. The truck cover system further includes a latching housing releasably latched to the latching positioner.

According to some embodiments, the first through hole and the positioning hole are disposed along a longitudinal direction of the latching insert and are spaced apart from each other.

According to some embodiments, the first through hole and the positioning hole are disposed along a direction perpendicular to a longitudinal direction of the latching insert and are spaced apart from each other.

According to some embodiments, the latching insert comprises a plurality of the first through holes and a plurality of the positioning holes.

According to some embodiments, the truck cover system further includes a bolt passing through the first through hole and the second through hole, and a nut engaging with the bolt.

According to some embodiments, the positioning hole comprises a through hole.

According to some embodiments, the positioning hole comprises a blind hole.

According to some embodiments, the positioning hole has a diameter different from that of the first through hole.

According to some embodiments, the positioning hole has the same diameter as that of the first through hole.

According to some embodiments, wherein the latching slot comprises an upper lip and a lower lip defining an opening therebetween, wherein the bolt passes through the opening.

According to some embodiments, the lower lip extends along a vertical direction, and the upper lip slants from the vertical direction.

According to some embodiments, the latching positioner comprises a slant engaging surface that engages with the upper lip of the latching slot.

According to some embodiments, the latching housing comprises a latching end, and the latching positioner comprises a latching surface at an end of the latching positioner, wherein the latching end engages the latching surface.

According to some embodiments, the latching end comprises a finger engaging the latching surface.

According to some embodiments, the latching surface comprises a protrusion at a top portion thereof.

According to some embodiments, the latching surface comprises a concave surface.

According to some embodiments, the latching housing comprises a latching tongue releasably engaged in the latching slot of the rail.

According to some embodiments, the latching insert comprises a recess to receive the latching tongue.

According to some embodiments, the latching housing comprises a latching pin coupled to the latching tongue through a spring.

According to some embodiments, the first through hole comprises a countersink to receive a head of the bolt.

Numerous benefits are achieved by way of the present invention over conventional techniques. For example, embodiments of the present invention provide a truck cover system that can improve the releasably latching of the cover in the extended configuration. For some embodiments, the cooperation between the latching housing and the latching positioner may be conveniently adjusted to vary the tension applied to the cover. The latching surface of the latching positioner can prevent the latching housing from slipping off in operation. For some embodiments, the positioning pin can make sure the latching housing and the latching positioner to be readily aligned. These and other embodiments of the invention along with many of its advantages and features are described in more detail in conjunction with the text below and attached figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings form a part of the present disclosure, that describe exemplary embodiments of the present invention. The drawings together with the specification will explain the principles of the invention. The following diagrams are merely examples, which should not unduly limit the scope of the claims herein. One of ordinary skill in the art would recognize many other variations, modifications, and alternatives. It is also understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this process and scope of the appended claims.

FIG. **1** is a perspective view of an embodiment of a truck with a cover system according to embodiments of the present invention.

FIG. **2** is a partial rear perspective view of a latching system according to embodiments of the present invention.

FIG. **3** shows a partially exploded view of a latching system according to embodiments of the present invention.

FIG. **4** is a perspective view of the latching positioner according to embodiments of the present invention.

FIG. **5** is a partial perspective view of the latching system according to embodiments of the present invention.

FIG. **6** is a partial perspective view of the latching system according to embodiments of the present invention.

FIG. **7** is a partial rear perspective view of the latching system according to embodiments of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is directed to truck bed cover systems.

One or more specific embodiments of the present invention will be described below. These embodiments are only exemplary of the present invention. Additionally, in an effort to provide a concise description of these exemplary embodiments, all features of an actual implementation may not be described in the specification. It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous implementation-specific decisions must be made to achieve the developers' specific goals, such as compliance with system-related and business-related constraints, which may vary from one implementation to another. Moreover, it should be appreciated that such a development effort might be complex and time consuming, but would nevertheless be a routine undertaking of design, fabrication, and manufacture for those of ordinary skill having the benefit of this disclosure.

FIG. **1** is a perspective view of an embodiment of a truck **10** with a truck cover system **12**. As illustrated, the cover system **12** covers the compartment **14** formed by the truck bed **16** to protect an interior of the truck bed **16** and items that may be stored in the compartment **14**. For example, the cover system **12** may block dirt and precipitation from entering the truck bed **16**.

The cover system **12** includes a cover **18** (e.g., flexible cover) that extends over the compartment **14**. The cover **18** may be made out of a variety of materials including fabric, plastic (e.g., vinyl), etc. The cover **18** couples to the truck bed **16** with rails **20** that in turn couple to truck walls **22** (e.g., truck bed walls). To block removal of the cover **18** and/or access to the truck bed **16**, the cover system **12** includes one or more latch systems **24**. For example, the cover system **12** may include two latch systems **24** one at each corner of the truck bed **16** next to the tailgate **26**. In operation, the latch systems **24** couple to the rails **20** to tension/pull the cover **18** into an extended position (e.g., tensioned configuration) that facilitates the flow of precipitation off of the cover system **12** as well as enhancing the aesthetic appearance of the cover system **12**.

FIG. **2** is a partial rear perspective view of the latch system **24** according to some embodiments. It should be noted that FIG. **2** shows rail **20** used as the left rail if viewing in the driving direction of the truck. In some embodiments, the right rail of the cover system is a mirror image of rail **20** shown in FIG. **2**. As shown in FIG. **2**, rail **20** extends in a longitudinal direction for a predetermined length. It should be noted that the longitudinal direction may refer to the direction parallel with the longitudinal direction of the truck. In some embodiments, rail **20** may include a channel **210** disposed on the top portion of rail **20**. In some embodiments, channel **210** extends in the longitudinal direction of rail **20**. In some embodiments, channel **210** is inclined outward away from the horizontal direction. In this case, the inner side (adjacent to the compartment **14** of the truck bed **16**) of the channel **210** is higher than the outer side of channel **210**, which facilitates the falling off of the precipitation on the cover attached to rail **20**. In some embodiments, channel **210** may include retaining members **212** disposed on the opposite sides thereof. In some embodiments, channel **210** is configured to couple to cover **18** (not shown). In some embodiments, a fastening system (e.g., a hook and loop fastening system) may be disposed in channel **210** to secure cover **18** (not shown) in the extended configuration. In this case, a corresponding fastening system may be attached to cover **18** to fasten cover **18** to rail **20**.

As shown in FIG. **2**, rail **20** may include a latching slot **220** also extending in the longitudinal direction of rail **20**. In some embodiments, latching slot **220** may include an upper lip **222** and a lower lip **224**, for example, at the side adjacent to compartment **14**. In some embodiments, upper lip **222** is disposed to incline away from the hollow inner portion of latching slot **220**. For example, upper lip **222** is inclined toward the inner side of the truck bed. In some embodiment, the inclined upper lip **222** may engage a corresponding inclined surface **254** on a latching insert **250** (which is described below in detail) to improve the engagement. In some embodiments, lower lip **224** may extend vertically to improve positioning between rail **20** and latching positioner **250**. It should be noted that the horizontal and/or vertical direction refers to the horizontal and/or direction when the truck is in normal operation. For example, the horizontal direction refers to a direction that is parallel with a driving surface on which the truck is driven, while the vertical direction refers to a direction perpendicular to the driving surface. In some embodiments, latching slot **220** defines an opening **223** between upper lip **222** and lower lip **224**. The dimension of the opening **223** between upper lip **222** and lower lip **224** is reduced compared with the dimension of the cross-section of latching slot **220** due to the opposite extension of upper lip **222** and lower lip **224**, thereby providing a retaining structure for latching positioner **250**. In this case, latching slot **220** can secure latching system **24** in position to tension cover **18** (not shown) in the extended configuration.

In some embodiments, latching system **24** may include a latching housing **230**, a latching insert **240** inserted into latching slot **220**, and a latching positioner **250** fastened to latching insert **240** through latching slot **220**. In some embodiments, at least a part of latching insert **240** slides from one end of rail **20** into latching slot **220**. For example, a part of latching insert **240** slides from the rear end of rail **20** adjacent to the tailgate of the truck into latching slot **220**.

Latching positioner **250** is fastened to latching insert **240** using fasteners. In some embodiments, latching positioner **250** also provides alignment indicia to facilitate alignment of the latching positioners **250** at the two corners of the truck bed, whereby evenly tensioning cover **18**. In some embodiments, latching positioner **250** also provides adjustment to the position of the end portion of cover **18**, whereby providing different tensioning to cover **18**. The details of the structures of latching positioner **250** and latching insert **240** are described below.

As shown in FIG. **2**, latching positioner **250** may include a latching surface **252** at one end thereof, which receives an end of the latching housing **240** to provide a tensioning effect to cover **18** (not shown). In some embodiments, the

upper portion of latching surface **252** may include a small protrusion **259** (shown in FIG. **4**) to improve the latching effect with latching housing **230**. Latching positioner **250** may include an inward inclined surface **254** on a side engaging latching slot **220**. For example, the side engaging latching slot **220** may be the outer side distant from the compartment **14** of the truck bed **16** (shown in FIG. **1**). The inward inclined surface **254** may engage upper lip **222** of latching slot **220** in the assembled state of the latching system **24**.

As shown in FIG. **2**, latching housing **230** may include a latching tongue **232** driven by a latching pin **233**. In some embodiments, a spring (not shown) is sleeved on the latching pin **233** to provide a driving force to latching pin **233**. It should be noted that FIG. **2** shows the latching system **24** in the unlatched position, where the latching tongue **232** is driven by the spring to an extended position. Latching tongue **232** may snap into latching slot **220** to retain latching housing **230** in position when tensioning cover **18** (not shown) to the extended configuration to prevent unintentional release of the latching housing **230** from latching positioner **250**. When it is desired to release latching housing **230** from latching positioner **250** in order to store cover **18** in a stowed position, one can drive latching pin **233** to retract latching tongue **232** out of latching slot **220**.

As shown in FIG. **2**, latching housing **230** may include a latching end **234**, which may engage latching surface **252** of latching positioner **250**. For example, latching end **234** may be the front end of latching housing **230**. In some embodiments not shown, latching end **234** may include a finger on the top portion thereof, which may facilitate the latching effect between latching end **234** and latching surface **252**. In some embodiments, the latching effect is further improved when latching end **234** includes the finger, and latching surface **252** includes the protrusion **259** (shown in FIG. **4**).

FIG. **3** shows a partially exploded view of latching system **24**, illustrating latching positioner **250** and latching insert **240**. As shown in FIG. **3**, latching insert **240** may include an end plate **242** at one end thereof, and an insert body **244** extending from end plate **242**. For example, end plate **242** may be disposed at the rear end of latching insert **240**, while insert body **244** may extend in the longitudinal direction of rail **20** (shown in FIG. **2**). In some embodiments, end plate **242** may cover the end of rail **20** to prevent debris or other foreign materials from entering into latching slot **220** of rail **20**. In some embodiments, latching insert **240** may be formed as a one-piece structure to improve its strength. In some other embodiments, end plate **242** and insert body **244** may be formed separately. Then end plate **242** and insert body **244** may be coupled together using adhesive or glue. In some embodiments, endplate **242** and insert body **244** may also be coupled together using welding or soldering processes. In some embodiments, additional components may be disposed on end plate **242** to provide additional functions. For example, a reinforcing stub **241** may extend from end plate **242**, which may slide into a corresponding slot disposed in rail **20** to provide additional structural reinforcement. In some embodiments, the cross-section of insert body **244** may conform with the cross-section of latching slot **220** (shown in FIG. **2**) and can fit in the latching slot **220**. Insert body **244** may include an engaging surface **245** that may engage upper lip **222** and lower lip **224** of latching slot **220** when insert body **244** slides into latching slot **220**.

As shown in FIG. **3**, a through hole **246** is disposed in insert body **244** that is opened from engaging surface **245**. In some embodiments, through hole **246** may extend horizontally in a crosswise direction when latching system **24** is in operation. In some embodiments, a positioning hole **247** is disposed in insert body **244**. In some embodiments, positioning hole **247** is disposed side by side with through hole **246** along the longitudinal direction of latching insert **240**, that is along the longitudinal direction of rail **20**, and spaced apart from each other. In some embodiments not shown, positioning hole **247** may be disposed side by side with through hole **246** along a direction perpendicular with the longitudinal direction of latching insert **240** and are spaced apart from each other. It should be noted that the relative position between through hole **246** and positioning hole **247** may vary as appropriate according to particular applications, and it should not be limited to the positions as shown in FIG. **3**.

In some embodiments, positioning hole **247** may be designed as a through hole. In some other embodiments, positioning hole **247** may be designed as a blind hole opened from engaging surface **245**. In some embodiments, positioning hole **247** may have a diameter different from that of through hole **246**. In some other embodiments, positioning hole **247** may have the same diameter as that of through hole **246**. In some embodiments, the distance of through hole **246** from end plate **242** may be designed according to the particular applications. In some embodiments not shown, insert body **244** may include a plurality of through holes **246** spaced apart from each other along the longitudinal direction of latching insert **240**. In such case, insert body **244** provide different positioning for latching positioner **250** along the longitudinal direction of rail **20**. In some embodiments not shown that includes a plurality of through holes **246**, one through hole **246** may be used as the positioning hole for the adjacent through hole **246**, provided the distance between through holes **246** remain the same. In some embodiments not shown that includes a plurality of through holes **246**, insert body **244** may also include a plurality of positioning holes **247**. In such case, each through hole **246** may have its own positioning hole **247**. In such case, a pair of through hole **246** and positioning hole **247** may be disposed side by side along the direction perpendicular to the longitudinal direction of latching insert **240**. In such case, the distance between adjacent through holes **246** may not be designed evenly, rather varies as appropriate according to particular applications.

As shown in FIG. **3**, insert body **244** may include a recess **243** opened from surface **245**. In some embodiments, recess **243** may receive latching tongue **232** of latching housing **230** (shown in FIG. **2**) when latching housing **230** engages latching positioner **250**.

As shown in FIG. **3**, latching positioner **250** may include a through hole **256** extending in the same direction as through hole **246** in insert body **244**. For example, through hole **256** is aligned with through hole **246**. A bolt **260** may pass through hole **256** and through hole **246** and engage with a nut **262** to fasten the latching positioner **250** with insert body **244** when insert body **244** slides into latching slot **220** of rail **20**. In this case, bolt **260** also passes through the opening **233** defined in latching slot **220**, with upper lip **222** and lower lip **224** interposed between latching positioner **250** and latching insert **240**. In some embodiments, through hole **256** may include a countersink hole. In such case, the head of bolt **260** may remain level with a side surface **251** of latching positioner **250** that is adjacent to the compartment **14** of the truck bed **16**. The cooperation between bolt **260** and nut **262** may provide the desired latching effect

between latching positioner **250** and rail **20** while avoiding excessive fastening pressure applied to rail **20** that causes deformation thereof.

In some embodiments, insert body **244** may include a notch **248** on a side surface **249** opposite side surface **245**. Notch **248** can receive nut **262**. In some embodiments, latching positioner **250** may include a positioning pin **257** extending from a side surface **253** opposite side surface **251**. In some embodiments, positioning pin **275** is aligned with positioning hole **247** in insert body **244**. Positioning pin **257** may insert into positioning hole **247** in insert body **244** when latching positioner **250** engages with insert body **244**. In some embodiments, positioning pin **257** may improve the positioning between latching positioner **250** and rail **20**.

FIG. **4** is a perspective view of latching positioner **250** according to some embodiments. As shown in FIG. **4**, latching positioner **250** may include a latching surface **252**, which is structured as a concave surface. In some embodiments, latching positioner **250** may include a side plate **255** extending along side surface **251**. In some embodiments, side plate **255** is disposed at an inner side of latching positioner **250**, which is adjacent to compartment **14** when latching positioner **250** is assembled with rail **20** (shown in FIG. **2**). Side plate **255** may stop latching end **234** (shown in FIG. **2**) of latching housing **230** (shown in FIG. **2**) from falling laterally out of engagement with latching surface **252**. In some embodiments, latching positioner **250** may include protrusion **259** disposed at the upper portion of latching surface **252**. In some embodiments, protrusion **259** may have a thickness of 3 mm at the end thereof. Protrusion **259** may stop latching end **234** of latching housing **230** from disengaging upwardly from latching surface **252** in order to improve latching effect with latching housing **230**. In some embodiments, latching positioner **250** may include a ramp surface **258** extending slantly downward from latching surface **252**. Ramp surface **258** may facilitate retaining the engagement between latching end **234** of latching housing **230** and latching surface **252** of latching positioner **250** by preventing latching end **234** from moving downwardly.

FIG. **5** is a partial perspective view of latching system **24**, illustrating latching housing **230** and latching positioner **250** in the latched position. For clarification of illustration, latching insert **240** is omitted from FIG. **5**. As shown in FIG. **5**, latching end **234** of latching housing **230** engages latching surface **252** of latching positioner **250**. In some embodiments, latching end **234** may have a thickness of 8 mm to provide sufficient stiffness for latching end **234**. In some embodiments, latching end **234** may have a round contour to facilitate latching end **334** sliding over protrusion **259** of latching positioner **250** and get into engagement with latching surface **252** of latching positioner **250**. As shown in FIG. **5**, latching housing **230** may include latching tongue **232** driven by latching pin **233** (shown in FIG. **2**). In some embodiments, latching housing **230** may include an opening **235** disposed at a side from which latching tongue **232** may pass through and extend out of latching housing **230**. In some embodiments, the upper surface **237** of latching tongue **232** is a planer surface, and the lower surface **236** of latching tongue **232** is a ramp that inclines downwardly from the upper surface **237**. The ramp facilitates the snapping of latching tongue **232** into engagement with latching slot **220** (shown in FIG. **2**), while the planer surface of upper surface **237** may prevent latching tongue **232** from accidentally disengaging from latching slot **220**. In some embodiments, lower surface **236** may include a round contour.

FIG. **6** is a partial perspective view of latching system **24**, illustrating latching housing **230**. As shown in FIG. **6**, latching system **24** may include an end rail **30** in some embodiments. In some embodiments, a latching housing **230** may be disposed at each end of end rail **30**. In some embodiments, latching housing **230** may include a cord **238** attached to latching pin **233**. When it is desired to release latching housing **230** from latching positioner **250** in order to store cover **18** in a stowed position, one can drive latching pin **233** by drawing cord **238** to retract latching tongue **232** out of latching slot **220**. In some embodiments, end rail **30** may include an anchor structure **302** to which cord **238** is attached. In some embodiments, latching housing **230** may include a plurality of cords **238** disposed between the two latching housings **230** at both ends of end rail **30**. End rail **30** may include a plurality of anchor structures **302** to anchor the plurality of cords **238**. When it is desired to release latching tongue **232**, one may draw any section of cords **238** away from end rail **30** in a direction substantially perpendicular to the longitudinal direction of end rail **30**.

FIG. **7** is a partial rear perspective view of latching system **24**, illustrating latching housing **230** and latching positioner **250** in the latched position. As shown in FIG. **7**, latching end **234** of latching housing **230** engages latching surface **252** of latching positioner **250**. In some embodiments, latching surface **252** of latching positioner **250** may be structured as a planer surface. Thanks to the latching tongue **232** (shown in FIG. **6**) snaping into latching slot **220** (shown in FIG. **2**), latching end **234** of latching housing **230** could not disengage unintentionally from latching surface **252** of latching positioner **250**.

While the above is a full description of the specific embodiments, various modifications, alternative constructions and equivalents may be used. Therefore, the above description and illustrations should not be taken as limiting the scope of the present disclosure which is defined by the appended claims.

What is claimed is:

1. A truck cover system, comprising:

a rail coupled to a wall of a truck, wherein the rail comprises a channel on a top portion of the rail and a latching slot at a side of the rail, wherein the channel extends along a longitudinal direction of the rail and is configured to couple to a cover, and the latching slot extends along the longitudinal direction of the rail;

a latching insert inserted in the latching slot, wherein the latching insert comprises a first through hole and a positioning hole;

a latching positioner fastened to the latching insert, wherein the latching positioner comprises a second through hole aligned with the first through hole and a positioning pin aligned with the positioning hole; and

a latching housing releasably latched to the latching positioner.

2. The truck cover system of claim **1**, wherein the first through hole and the positioning hole are disposed along a longitudinal direction of the latching insert and are spaced apart from each other.

3. The truck cover system of claim **1**, wherein the first through hole and the positioning hole are disposed along a direction perpendicular to a longitudinal direction of the latching insert and are spaced apart from each other.

4. The truck cover system of claim **1**, wherein the latching insert comprises a plurality of the through holes and a plurality of positioning holes, the plurality of through holes including the first through hole.

5. The truck cover system of claim **1**, further comprising a bolt passing through the first through hole and the second through hole, and a nut engaging with the bolt.

6. The truck cover system of claim 5, wherein the first through hole comprises a countersink hole to receive a head of the bolt.

7. The truck cover system of claim 5, wherein the latching slot comprises an upper lip and a lower lip defining an opening therebetween, wherein the bolt passes through the opening.

8. The truck cover system of claim 7, wherein the lower lip extends along a vertical direction, and the upper lip inclines from the vertical direction.

9. The truck cover system of claim 8, wherein the latching positioner comprises an inclined engaging surface that engages with the upper lip of the latching slot.

10. The truck cover system of claim 1, wherein the positioning hole comprises a through hole.

11. The truck cover system of claim 1, wherein the positioning hole comprises a blind hole.

12. The truck cover system of claim 1, wherein the positioning hole has a diameter different from that of the first through hole.

13. The truck cover system of claim 1, wherein the positioning hole has a same diameter as that of the first through hole.

14. The truck cover system of claim 1, wherein the latching housing comprises a latching end, and the latching positioner comprises a latching surface at an end of the latching positioner, wherein the latching end engages the latching surface.

15. The truck cover system of claim 14, wherein the latching end comprises a finger engaging the latching surface.

16. The truck cover system of claim 14, wherein the latching surface comprises a protrusion at a top portion thereof.

17. The truck cover system of claim 14, wherein the latching surface comprises a concave surface.

18. The truck cover system of claim 1, wherein the latching housing comprises a latching tongue releasably engaged in the latching slot of the rail.

19. The truck cover system of claim 18, wherein the latching insert comprises a recess to receive the latching tongue.

20. The truck cover system of claim 18, wherein the latching housing comprises a latching pin coupled to the latching tongue through a spring.

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